



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Steven T. Harshfield

Serial No.: 10/774,762

Filed: August 31, 2004

For: METHOD AND APPARATUS FOR
FORMING AN INTEGRATED CIRCUIT
ELECTRODE HAVING A REDUCED
CONTACT AREA

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Group Art Unit: 2814

Examiner: Ha, Nathan W.

Atty. Docket: MCRO:022-3/FLE

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February 28, 2007

Date

Robert Mahware

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Dear Sir:

Appellant respectfully submits this Pre-Appeal Brief Request for Review, which is filed in accordance with the OG Notice of July 12, 2005. As required by this Notice, the present Request is being filed concurrently with a Notice of Appeal.

On October 11, 2006, the Examiner issued a Final Office Action in which the Examiner rejected claims 17-63. Appellant respectfully traverses this rejection because, in several aspects, it is legally deficient. Below, Appellant explains some of these deficiencies, after summarizing the rejections.

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Summary of the Rejections

In the Final Office Action, the Examiner made the following rejections:

- claims 17, 20-21, 23, 26-27, 30-33, 36, 39-42, 45-46, 49-51, 54-55, 58-60 and 63 as obvious over Morishita (U.S. Pat. No. 5,529,956) in view of Fitch et al. (U.S. Pat. No. 5,252,849, hereinafter "Fitch");
- claims 24-25, 34-35, 43-44, 52-53 and 61-62 as obvious over Morishita in view of Fitch and Yamazaki et al. (U.S. Pat. No. 5,091,334, hereinafter "Yamazaki"); and
- claims 18-19, 28-29, 37-38, 47-48 and 56-57 as obvious over Morishita in view of Fitch and Nakazato et al. (U.S. Pat. No. 5,497,023, hereinafter "Nakazato").

Each of these rejections rely on Morishita. In particular, these rejections rely on a field insulating layer 2 in FIG. 2 of Morishita for a conductive material or a conductive plate. *See* Advisory Action, page 2. Below, Appellant explains why this reliance is improper.

Morishita does not Teach or Suggest the Conductive Plate of Claims 17, 27, 36, and 46

Independent claims 17, 27, 36, and 46 each recite a conductive plate. In these claims, the conductive plate is described as having a variety of relationships with other claim features. For example, claim 17 is reproduced below:

17. A memory device having at least one memory cell, the memory cell having a storage element comprising:

a substrate having a first surface and a conductive plate disposed below the first surface;

an electrode disposed within the substrate and extending from the first surface to the conductive plate, the electrode having a first portion extending downward from the first surface of the substrate and a second portion extending upward from the conductive plate to the first portion, wherein a lateral dimension of the first portion of the electrode is less than a lateral dimension of the second portion of the electrode; and

a memory element electrically coupled to the first portion of the electrode. (Emphasis added.)

In his rejection, the Examiner cited the field insulating layer 2 of FIG. 2 of Morishita as corresponding to the recited “conductive plate.” The Examiner explained “This layer is capable of [being] thermally conductive. Therefore, it is a thermal conductive plate which is formed below the substrate 4.” *See id.* However, Appellant traverses this rejection for at least two reasons: (1) the term “conductive plate,” in the present context, does not refer to thermal conductivity; and (2) even if it did, those skilled in the art would not correlate a field insulating layer with a “conductive plate.”

The Term “Conductive Plate” does not Refer to Thermal Conductivity

The term “conductive plate” has been misconstrued by the Examiner. The Federal Circuit has held that interpretation of the claims must also be consistent with the interpretation that one of ordinary skill in the art would reach. *See In re Cortright*, 165 F.3d 1353, 1359, 49 U.S.P.Q.2d 1464, 1468 (Fed. Cir. 1999); M.P.E.P. § 2111. Here, for several reasons, one of ordinary skill in the art would not construe the term “conductive plate” to refer to thermal conductors. The context of claim 17 makes clear that the “conductive plate” is an electrical conductor. Claim 17 recites “an electrode... extending ... to the conductive plate.” This suggests that the conductive plate conducts electrons. Further, claim 17 recites that various components are electrically coupled, not thermally coupled. The claims that depend from claim 17 also suggest that “conductive” means “electrically conductive.” For example, claim 23 recites that “the conductive plate is a wordline.” The Examiner’s construction is also contrary to the specification. The specification, at several points, refers to electrical conductivity but not once does it refer to thermal conductivity. *See e.g.* Application, paragraphs 3, 5, and 29. Given this context, one of ordinary skill in the art would not construe the term “conductive plate” as referring to a thermal conductor. That is, there is nothing in the claims or specification that would suggest that the “conductive plate” refers to a “thermally conductive plate.” Such an interpretation is unreasonably broad and wholly inconsistent with Appellant’s specification.

The Field Insulating Layer is not a Thermal Conductor

Notwithstanding this improper construction and contrary to the Examiner’s assertion, the field insulating layer 2 of Morishita is not a thermal conductor. The Examiner has not cited any

evidence of the field insulating layer's capacity to conduct heat, and Morishita does not mention any such capacity.

All the Examiner has done to support this contention is to note that the field insulating layer is capable of conducting heat. However, this argument merely highlights the weakness of the Examiner's position. All materials are capable of conducting heat to *some* degree, so the Examiner has essentially read the word "conductive" out of the claims. This is contrary to the precedent cited above. One of ordinary skill in the art would assume that the word "conductive" modifies the word "plate" in some manner other than merely indicating that it shares a property with all other matter. That is, one of ordinary skill in the art would not read the term "conductive plate" as synonymous with the term "plate." Thus, the one argument that the Examiner makes undermines his position.

In short, the field insulator film of Morishita is not a thermal conductor. Thus, even if, *ad arguendo*, the term "conductive plate" refers to thermal conductors, it does not refer to the field insulator film cited by the Examiner. Plainly stated, those skilled in the art would not associate a "conductive plate," as recited in the present claims, with an "insulating layer," as asserted by the Examiner. Such an interpretation is completely contrary to the established meaning of such terms, as understood by those skilled in the art.

Conclusion

The Examiner relies on Morishita for a feature of the present claims that it does not contain: the conductive plate. As explained, this reliance is improper because (1) the term "conductive plate," in the present context, does not refer to thermal conductivity; and (2) even if it did, it would not refer to a field insulating layer. For at least these reasons, Appellant respectfully requests withdrawal of the foregoing rejections and allowance of all pending claims.

General Authorization and Request for Extensions of Time

Appellant hereby requests a one-month extension of time from issuance of the Advisory Action mailed January 29, 2007 to February 29, 2007. The Commissioner is authorized to charge the requisite fee of \$620.00 (\$120.00 for the one month extension and \$500.00 for the Notice of Appeal), and any additional fees which may be required, to the credit card listed on the attached PTO-2038. However, if the PTO-2038 is missing, if the amount listed thereon is insufficient, or if the amount is unable to be charged to the credit card for any other reason, the Commissioner is authorized to charge Deposit Account No. 06-1315; Order No. MCRO:022—3 / FLE (95-0228.03).

Respectfully submitted,

Date: February 28, 2007



Robert A. Manware
Reg. No. 48,758
(281) 970-4545
FLETCHER YODER
P.O. Box 692289
Houston, TX 77269-2289